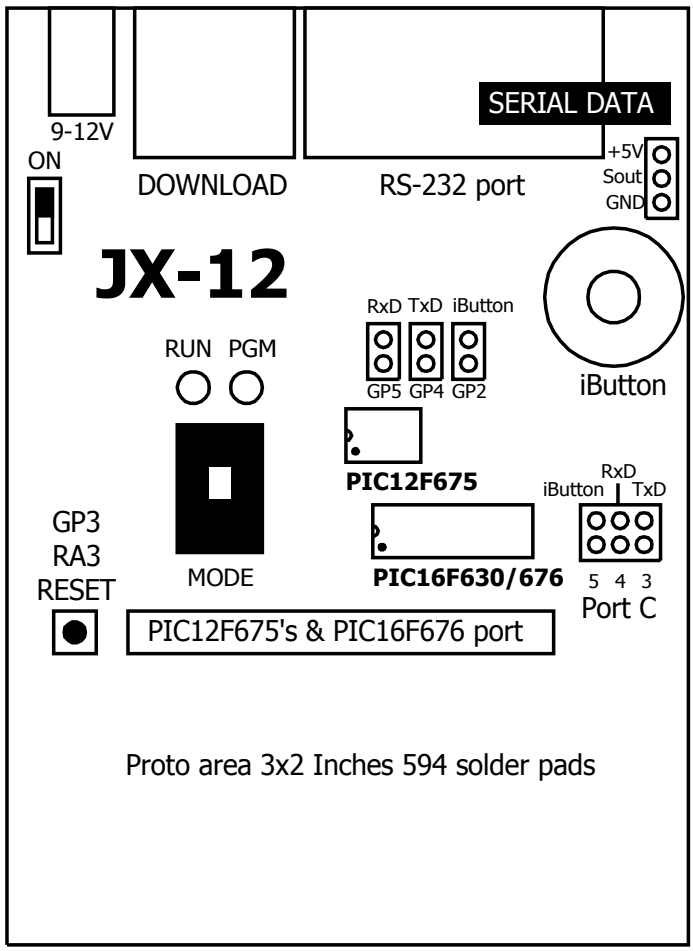
JX-12

PIC12F629/675, PIC16F630/676 Project board

- On-Board PIC12F675 , can use with PIC16F630/676
- 2.00"x3.25" Prototype area with 594 pads
- Downloading of program via PC parallel port
- Selection of RUN/PROG mode by switch
- Built in RS-232 interface and iButton socket
- Requires Power DC adapter 16V 500mA
- Comes with PC Cable, CD (Win98SE/ME/XP) and User Manual



JX-12 board layout and jumper selection

GP2 : iButton select GP2 connect to iButton

GP4 : TxD - select GP4 connect to Transmit serial data to RS-232 and SERIAL DATA point

GP5 : RxD - select GP5 to Receive serial data from RS-232

Port C :

3-TxD

select RC3 of PIC16F630/676 to Transmit serial data to RS-232 and SER-OUTpoint (must remove PIC12F675 before and fit PIC16F630 or PIC16F676 instead)

4-RxD

select RC4 of PIC16F630/676 to Receive serial data from RS-232 (must remove PIC12F675 before and fit PIC16F630 or PIC16F676 instead)

5-iButton

select RC5 of PIC16F630/676 to connect iButton device (must remove PIC12F675 before and fit PIC16F630 or PIC16F676 instead)

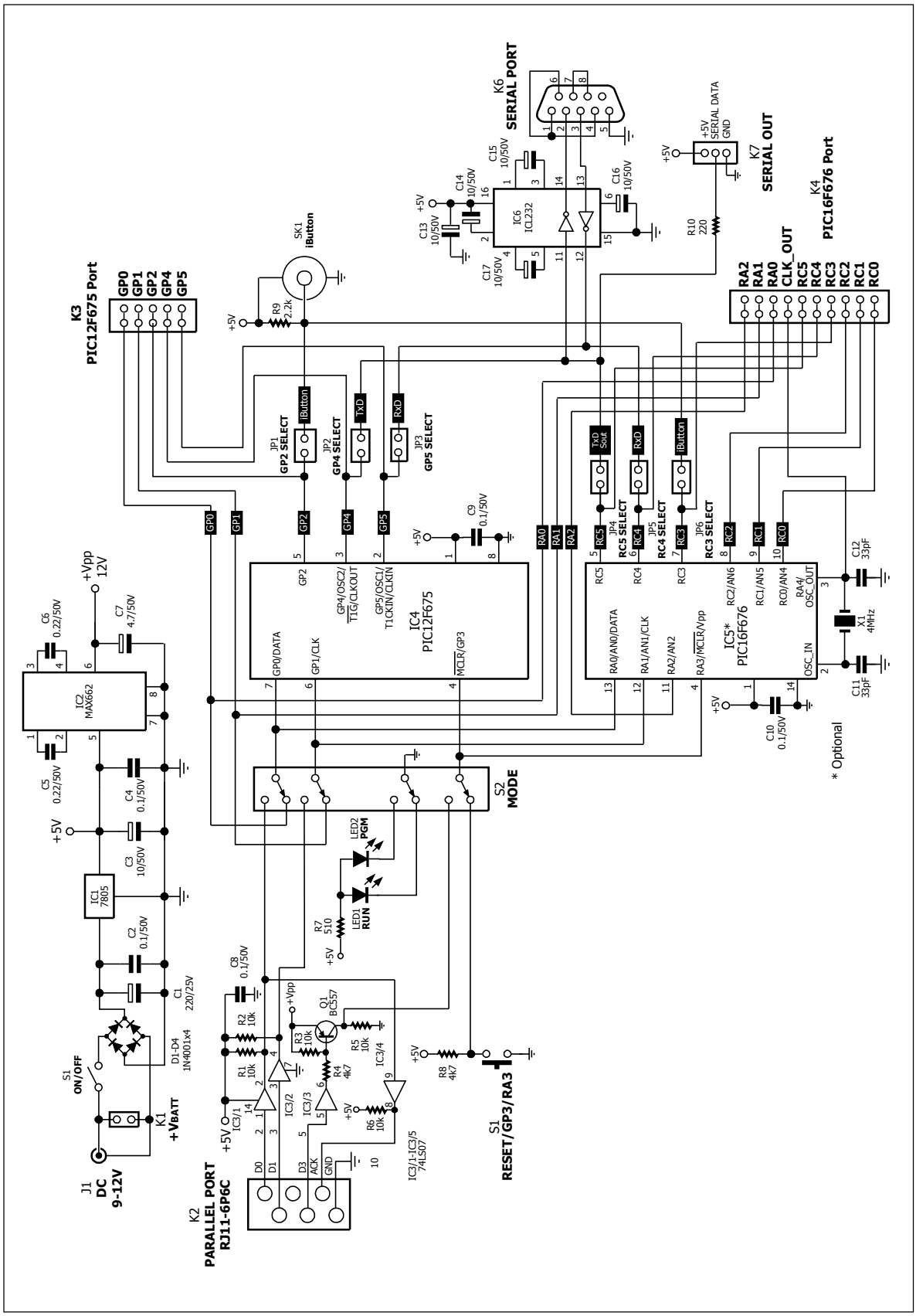


Figure 1 : JX-12 project board schematic

Using JX-12 board

Preparation

Before using, user must prepare some tool and software following :

1. Personal computer which install Window 95/98/ME/2000/XP, text editor program, MPLAB, MPASM and Miracle-PIC software

MPLAB *and* ***MPASM*** *are licenced by Microchip Technology , for more information please contact at http://www.microchip.com (included in CD-ROM when order JX-877 board)*

Miracle-PIC *is licenced by Innovative Experiment Co.Ltd. Please contact at www.inex.co.th (included in CD-ROM when order JX-876 board)*

2. Write program, set beginning address at 0x0000 and save file in .ASM

3. Assembler .ASM file by MPASM with selected INHX8M type. So it will be HEX file

4. Prepare DC adpator 16-20V 500mA.

Procedure

1. Constuct the curcuit, solder the components on prototype area on JX-628
2. Connect JX-628 with PC's parallel port.
3. Supply voltage to JX-628 board, green LED at "RUN" mode is bright.
4. Press MODE switch for changing to PROGRAM mode, red LED is bright.
5. Open mPicFlash.EXE (after install Miracle PIC flash software)
6. Select PIC16F628 or PIC16F628A microcontroller.
7. Open HEX file.
8. Erase data in microcontroller by pressed
9. Check blank data in microcontroller by pressed
10. Program data in microcontroller by pressed
11. Check the result by pressed and notice
12. In case, protect data.Select code protection in View → Configuration. PIC16F628 can choose 4 protection types; CP All, 0200H-07FFH,0400H-07FFH and CP OFF. These protection types have to choose before prigramming. Moreover, users can protect data from EEPROM by select CPD in Configuration.
13. After programming completed, press MODE switch to RUN mode. Microcontroller will runs your own program.
14. Save in desk, have to code protect. User can check by put microcontroller in socket, open Miracle-PIC program after that, press READ then select View menu → Program buffer and Data buffer.If showing 000, means code protect. After read data, select File menu → Save file As and name file.HEX

Using Miracle-PIC programmer software

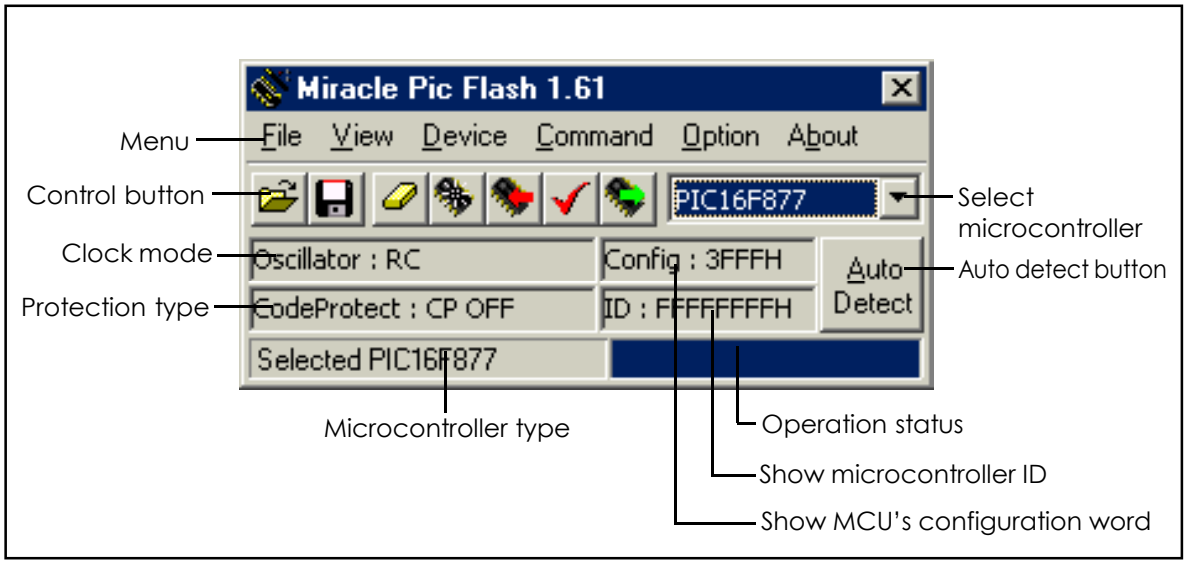


Figure 2 : Miracle-PIC Flash software main window

Main Control Button

Open Miracle PIC-Flash program, then select the microcontroller as figure 2, there is 8 function buttons follow this;

Open : Open HEX file

Save : Save source code in HEX file

PROGRAM : Program all data into program memory and EEPROM

VERIFY : Test program; compare data in buffer with MCU's data

READ : Read data from selected microcontroller and also read parameter

BLANK CHECK : Check blank data inside microcontroller

ERASE : Delete data in program memory of selected microcontroller. This function used with flash microcontroller memory or EEPROM only. For example, PIC16C84 or PIC 16Fxxx

Select microcontroller : Just click at the arrow. User will see many MCU lising.

Menu description

File

Open file - To open file.HEX

Save file As - To save data in another file name

Recent files - To open recently file

Exit - Quit

View

To see all parameter of PIC microcontroller

Program Buffer (F11) - shows code in program memory (figure 3). User can edit by select memory position and input value directly or use Fill Progran Bufer Function

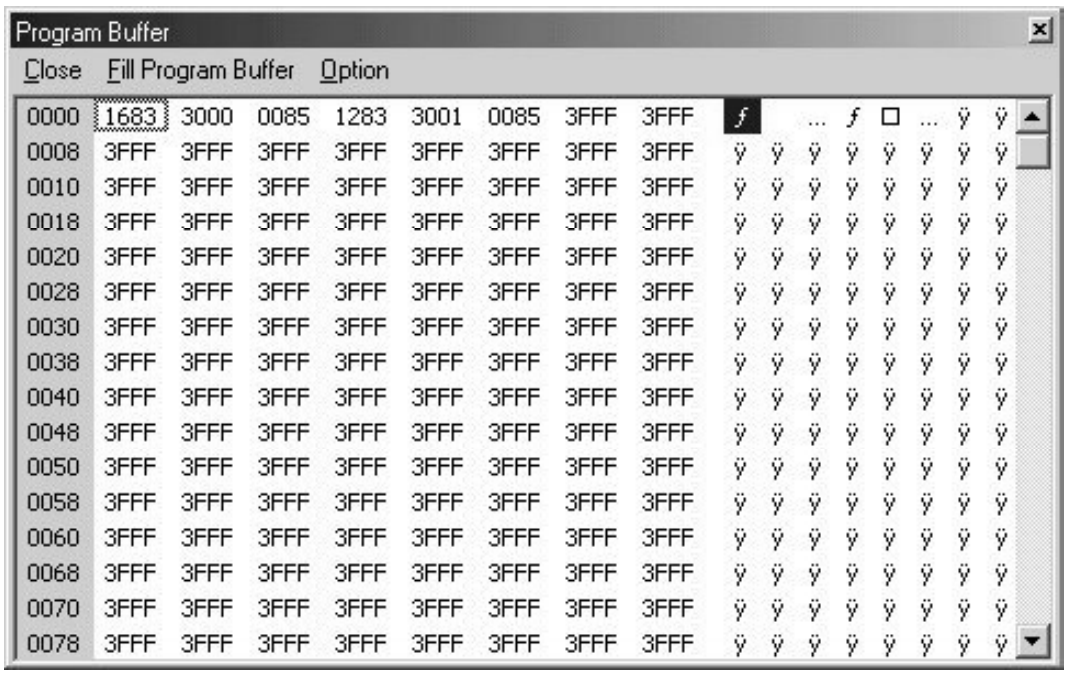
Data Buffer (F12) - shows all data EEPROM (figure 4). User can edit data by select memory position and input value directly or use Fill Progran Buffer Function

Configuration (F9) - shows detail of PIC configuration. User can enable or disable all parameter.

Calibrating OSCCAL - select to calibrate oscillator frequency internal PIC12F675/PIC16F630/676 in case select INTRC operation mode

Count Program - show number of programmed microcontroller *(not use this function in JX-628)*

Stay on top - Make the program always on the top


Program Buffer
Close
Fill Program Buffer
Option
0000 1683 3000 0085 1283 3001 0085 3FFF 3FFF
0008 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF
0010 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF
0018 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF
0020 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF
0028 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF
0030 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF
0038 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF
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0058 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF
0060 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF
0068 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF
0070 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF
0078 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF 3FFF

Figure 3 : Program buffer window, user can see all code and edit any address

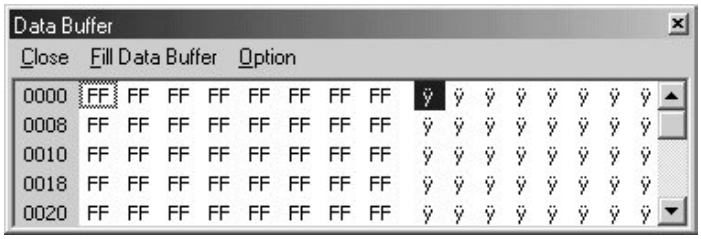
Data Buffer
Close
Fill Data Buffer
Option
0000 FF FF FF FF FF FF FF FF
0008 FF FF FF FF FF FF FF FF
0010 FF FF FF FF FF FF FF FF
0018 FF FF FF FF FF FF FF FF
0020 FF FF FF FF FF FF FF FF

Figure 4 : Data buffer window, user can see all data in EEPROM within microcontroller and edit any address

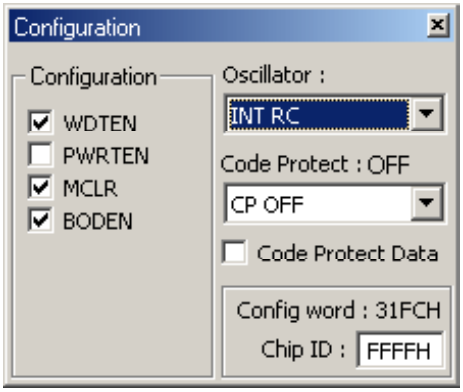

Figure 5 : Configuration window

Configuration Setting

Before programing PIC microcontroller, always fix configuraruon, go to View → Configuration. This is detail of them.

Oscillator - select clock mode, there are 8 types

LP - low cystal (normally not use in JX-12)

XT - normal cystal not over 4 MHz (normally not use in JX-12 in case fit PIC12F675 but use this mode in case fit PIC16F630 or PIC16F676 on JX-12 board)

HS - Over 4 MHz high frequency xtal (normally not use in JX-12)

EXTCLK - External Clock (not use in JX-12)

INTRC - Internal RC circuit

EXTRC (ER) - External RC circuit (not use in JX-12)

INTRC clockout - Internal RC circuit and send fOSC/4 clock signal out OSC2 pin. User can select OSC2 pin to RA6 port pin or Clock out pin t (not use in JX-12)

EXTRC clockout - External RC circuit and send fOSC/4 clock out OSC2 pin. User can select OSC2 pin to RA6 port pin or Clock out pin t (not use in JX-12)

Code protection - Use for selceting protection mode, ON or OFF. Select CPD box for protection data in EEPROM.

Configuration - To select special ability of PIC miocrocontroller, it depends on type of microcontroller. For PIC12Fxxx has 4 types;

WDTEN (watchdog Timer)

PWRTEN (Power-up Timer)

MCLR (Master ClearReset) : for select MCLR function to RESET. If not select, this pin assigned to RA5 input port pin.

BODEN (Brown-out Reset)

Device

Select type of PIC microcontroller

Command

Arrange reading, writing and testing data in microcontroller memory

Program Chip (F4) - Program code and data to microcontroller as PROGRAM buttom

Verify Chip (F5) - Check writing data in PIC microcontroller correct or incorrect as VERIFY buttom

Read Chip (F6) - Read data from microcontroller as READ buttom

Erase Chip (F7) - Delete data in PIC microconrtoller as ERASE buttom

Blank Chip (F8) - Check blank data in PIC microcontroller memory as BLANK CHECK button

Option

Separate 4 parts;

Part1

Program/Verify Program - check latest programming in microcontroller with buffer.

Program/Verify Data - check data in microcontroller memory after latest programming

Program/Verify ID - checking ID value in microcontroller after latest programming *(not use in JX-12)*

Program/Verify Configuration - check configuration value after latest programming

Part2 Special feature in Miracle-PIC programmer software

Verfy while program - check data while program microcontroller. If occur the faults, program will stop in suddenly.

Auto verify after program - check data after completely programming automatic.

Auto erase before program - delete data before programming

Program all address - program data in every address

Part3 **Configuration erase message** - selcet warning window

Part4 **Parallel port** - select parallel port LPT1 to LPT3